

In the Claims:

The following listing of the claims replaces all previous listings and versions of the claims in the application.

1.-48: (canceled)

49. (Currently Amended) ~~An apparatus~~ A system for forming molded items from thermoplastic workpieces, comprising:

a workpiece heating mechanism operable to heat a series of thermoplastic workpieces;

a workpiece manipulator operable to move each workpiece from the heating mechanism to a workpiece operation chamber;

a plurality of molds and corresponding plugs, each single mold and corresponding plug representing a unique shape; and

a mold and plug manipulator system operable to sequentially move the plurality ~~a series~~ of molds and plugs to the workpiece operation chamber,

the workpiece manipulator and mold and plug manipulator ~~configured being~~ operable to cause a single workpiece and a single mold and corresponding plug to substantially simultaneously arrive at the workpiece operation chamber to allow the workpiece manipulator to present the single workpiece to the single mold and corresponding plug so that the single workpiece is formed into a uniquely shaped molded item through the cooperative engagement of the single mold and corresponding plug~~[[,]]~~ ~~each single mold and plug representing a unique configuration.~~

50. (Currently Amended) The system ~~apparatus~~ of claim 49, further comprising a workpiece introduction system operable to introduce the series of workpieces sequentially into the workpiece heating mechanism.

51. (Currently Amended) The system ~~apparatus~~ of claim 50, wherein the workpiece introduction system is an inline system.

52. (Currently Amended) The system ~~apparatus~~ of claim 50, wherein the workpiece introduction system is a rotary turret system.

53. (Currently Amended) The system ~~apparatus~~ of claim 49, wherein the mold and plug manipulator system is a rotary turret system.

54. (Currently Amended) The system ~~apparatus~~ of claim 50, wherein the workpiece introduction system includes a cutter that is operable to form the series of workpieces from a roll of thermoplastic material.

55. (Currently Amended) The system ~~apparatus~~ of claim 49, further comprising a mold preparation chamber, and wherein the mold and plug manipulator system is operable to move each of the molds from the mold preparation chamber to the workpiece operation chamber.

56. (Currently Amended) The system ~~apparatus~~ of claim 55, wherein the mold preparation chamber includes a mold heating mechanism.

57. (Currently Amended) The system ~~apparatus~~ of claim 49, further comprising a laser-marking system operable to mark each molded item following its removal from the workpiece operation chamber.

58. (Currently Amended) The system ~~apparatus~~ of claim 49, further comprising a trimming system operable to trim each molded item following its removal from the workpiece operation chamber.

59. (Currently Amended) The system ~~apparatus~~ of claim 58, wherein the trimming system includes a multiple-axis CNC system.

60. (Currently Amended) The system apparatus of claim 49, wherein the molded items are uniquely shaped dental aligners.

61. (Currently Amended) The system apparatus of claim 49, wherein each plug in the series of plugs is configured for cooperation with a corresponding mold to ensure that the workpiece is pulled over the mold.

62. (Currently Amended) ~~An apparatus~~ A system for forming molded items from thermoplastic workpieces, comprising:

a workpiece heating mechanism operable to heat a series of thermoplastic workpieces;

a workpiece manipulator operable to move each workpiece sequentially from the heating mechanism to a workpiece operation chamber;

a plurality of molds and corresponding plugs, each single mold and corresponding plug representing a unique configuration;

a mold and plug manipulator system operable to move the plurality ~~a series of~~ molds and plugs sequentially to the workpiece operation chamber, to cause a single workpiece and a single mold and corresponding plug to substantially simultaneously arrive at the workpiece operation chamber, the workpiece manipulator operating to present the single workpiece to the single mold and corresponding plug to form each workpiece into to be formed into a uniquely configured molded item by means of a corresponding through the cooperative engagement of the single mold and corresponding plug moved to the workpiece operation chamber in coordination with each workpiece being moved into the workpiece operation chamber;

a laser-marking system operable to mark each uniquely configured molded item following its removal from the workpiece operation chamber; and

a trimming system operable to trim each uniquely configured molded item following its removal from the workpiece operation chamber.